WHAT IS CLAIMED IS:

1.   An image sensing apparatus which causes an image processing section to execute image processing to convert digital image data, which is obtained by A/D-converting an

5   output from an image sensing element, into output image data, wherein

said image processing section comprises a matrix arithmetic processing section and an N-dimensional (N is a positive integer) lookup table arithmetic processing

10   section and causes said matrix arithmetic processing section to process the digital image data before said N-dimensional lookup table arithmetic processing section.

2.   The apparatus according to claim 1, wherein said matrix arithmetic processing section changes a coefficient

15   to be used for matrix arithmetic processing in accordance with a color temperature of a light source.

3.   The apparatus according to claim 1, wherein said N-dimensional lookup table arithmetic processing section outputs three output signals in correspondence with three

20   input signals.

4.   The apparatus according to claim 1, wherein said N-dimensional lookup table arithmetic processing section includes a three-dimensional lookup table formed from $L \times M \times N$ (L, M, and N are arbitrary integers) lattice points

25   and calculates data among the lattice points by interpolation arithmetic processing.

5.   An image sensing apparatus which has an image sensing

element and an A/D conversion section which A/D-converts an output from the image sensing element, causes an image processing section to execute image processing to convert digital image data obtained from the A/D conversion section

5   into output image data, and records the output image data in a recording medium, wherein

said image processing section comprises a white balance processing section, a matrix arithmetic processing section, and an N-dimensional lookup table arithmetic

10   processing section where N is an integer not less than 3 and causes said matrix arithmetic processing section to process the digital image data before said N-dimensional lookup table arithmetic processing section.

6.   The apparatus according to claim 5, wherein in said

15   image processing section, said white balance processing section, said matrix arithmetic processing section, and said N-dimensional lookup table arithmetic processing section are arranged in an order named.

7.   The apparatus according to claim 6, wherein

20   the apparatus further comprises an interpolation processing section which interpolates the output from the image sensing element having a color filter comprising a plurality of colors, and

said interpolation processing section is arranged

25   before said N-dimensional lookup table arithmetic processing section.

8.   The apparatus according to claim 1, wherein said

N-dimensional lookup table arithmetic processing section
stores a chrominance signal which considers a memory color
of an input chrominance signal.

9.   An image sensing method which comprises a sensing an
image of an object with an image sensing element, and an
A/D-converting an output from the image sensing step, and
executes image processing in an image processing step to
convert digital image data obtained in the A/D conversion
processing into output image data, wherein

        the image processing step comprises a matrix
arithmetic processing step and an N-dimensional (N is a
positive integer) lookup table arithmetic processing step
and processes the digital image data in the matrix
arithmetic processing step before the N-dimensional lookup
table arithmetic processing step.

10.   The method according to claim 9, wherein in the matrix
arithmetic processing step, a coefficient to be used for
matrix arithmetic processing is changed in accordance with
a color temperature of a light source.

11.   The method according to claim 9, wherein in the
N-dimensional lookup table arithmetic processing step, N
output signals are output in correspondence with N input
signals.

12.   The method according to claim 9, wherein

        the image processing step further comprises a white
balance processing step, and

        the digital image data is processed in the white

balance processing step before the N-dimensional lookup table arithmetic processing step.

13. The method according to claim 12, wherein in the image processing step, the white balance processing step, the matrix arithmetic processing step, and the N-dimensional lookup table arithmetic processing step are executed in an order named.

14. The method according to claim 9, wherein

the method further comprises an interpolation processing step of interpolating the output from the image sensing element having a color filter comprising a plurality of colors, and

the interpolation processing step executes processing before the N-dimensional lookup table arithmetic processing step.

15. The method according to claim 9, wherein in the N-dimensional lookup table arithmetic processing step, an input chrominance signal is converted into a chrominance signal which considers a memory color of the input chrominance signal.

16. The method according to claim 9, wherein in the N-dimensional lookup table arithmetic processing step, a three-dimensional lookup table formed from $L \times M \times N$ (L, M, and N are arbitrary integers) lattice points is included, data among the lattice points is calculated by interpolation arithmetic processing.

17. A program causing a computer to execute an image

sensing method of claim 9.

18.   A computer-readable storage medium storing a program
of claim 17.